NAVAL HEALTH RESEARCH CENTER

SURVEY OF THE NAVY'S THREE-TIERED OBESITY TREATMENT PROGRAM

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Report No. 92-4

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NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATE COVERED
	July 1992	Interim

4. TITLE AND SUBTITLE
Survey of the Navy's Three-Tiered Obesity Treatment Program

5. FUNDING NUMBERS
Program Element: 63706N
Work Unit Number: M0095.005-6106

6. AUTHOR(S)
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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Health Research Center
P. O. Box 85122
San Diego, CA 92186-5122

8. PERFORMING ORGANIZATION
Report No. 92-4

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Naval Medical Research and Development Command
National Naval Medical Center
Building 1, Tower 2
Bethesda, MD 20889-5044

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES First printed as a technical report.

Published in: Military Medicine, 1993, 158(9), 614-618,

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

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14. SUBJECT TERMS
Weight Management Programs
Obesity treatment
Navy Personnel
Survey
Physical fitness

15. NUMBER OF PAGES
5

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

MILITARY MEDICINE, 158, 9:614, 1993

Survey of the Navy's Three-Tiered Obesity Treatment Program

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The Navy's diverse, three-tiered obesity treatment program is described. Level I (command-directed) programs rely primarily on group exercise to treat obesity; most level II (outpatient counseling) and level III (6-week inpatient) programs are modeled on Overeaters Anonymous and devote substantial amounts of time to group discussion, behavior modification, and nutrition education. Lack of funding or staffing has prevented many level II facilities from conducting a weight-management program, however. Further research might explore the potential for level II to provide a cost-effective middle ground for obesity treatment.

Introduction

Considerable evidence establishes obesity as an independent risk factor for the development of a number of chronic diseases, including hypertension, atherosclerosis, premature myocardial infarction, diabetes mellitus, gout, cholecystitis, and certain cancers.[1,2] Obesity is also generally associated with physical inactivity and decreased physical fitness, particularly suboptimal cardiorespiratory endurance.[3-5] Although it is the goal of the Chief of Naval Operations that 100% of Navy members meet the Navy's Physical Readiness Test (PRT) and body composition standards, about 10% of Navy personnel are either overfat or obese according to criteria in Table I.[6]

Navy policy concerning members who exceed percent body fat standards is clear: such personnel are subject to specific administrative actions, ranging from ineligibility for promotion to possible separation from the service.[7] In particular, members diagnosed as obese (vs. overfat) are not permitted to take the required PRT, thereby initiating a chain of conditional administrative procedures that lead either to rehabilitation or to separation at the convenience of the government. Given both the importance of maintaining a fit and healthy fighting force and the serious career consequences for failing to meet fitness and body composition standards, the Navy has developed a three-tiered remedial weight-management plan to assist overfat and obese personnel in meeting the designated standards.

Level I is the basic command-directed remedial conditioning program for all personnel who either exceed body fat standards or fail the PRT. Individuals who have been identified as overfat or obese and who have been unable to meet required standards within the level I program may be recommended by a medical officer to participate in a more intensive level II program, which is a non-residential weight-loss intervention conducted under the auspices of a Navy Counseling and Assistance Center (CAAC). Medically diagnosed obese individuals who meet time-in-service and career-level criteria may be referred to a level III residential obesity rehabilitation program at either a free-standing Alcohol Rehabilitation Center (ARC) or (if available) a hospital-based Alcohol Rehabilitation Department (ARD).

TABLE I

NAVY'S PERCENT BODY FAT CUTPOINTS

	Acceptable	Overfat	Obese
Men	<23%	23%-25%	26% and higher
Women	<31%	31%-25%	36% and higher

At present, the various weight-control programs are largely unstandardized and rely heavily on the creativity and dedication of program managers, most of whom fulfill their roles either as a collateral duty or as one of many other counseling and management duties required of them. Because of the wide diversity in available resources, referral patterns, and approaches to weight-control/obesity treatment, a survey was undertaken to help determine how individual commands and facilities are implementing the directive for remedial weight-control programs. This report presents the results of that survey.

Method

Based on informal interviews with remedial weight-management program directors, two survey questionnaires were developed: one for command-directed programs, and one for the CAACs, ARCs, and ARDs, which share a number of structural and procedural characteristics. Although specific items differed between the two surveys, the same broad topical areas were addressed in both: enrollment policies and procedures (e.g., separate groups for men and women), program demography (e.g., program length, number of meetings per week), program elements (e.g., group discussion, group exercise, nutrition education), and program management (e.g., measurements taken).

A stratified random sample of all Navy commands was selected using computerized personnel tapes maintained by the Bureau of Naval Personnel. All commands having 500 or more personnel attached to them were included; very small commands with less than 10 personnel were excluded; and a 20% random sample was drawn from the remaining commands having between 10 and 499 members. This procedure resulted in a level I sample of 925 commands, 161 of which were sea commands (surface ships, aircraft carriers, submarines). All

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The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of the Navy, the Department of Defense, or the U.S. Government.

This manuscript was received for review in August 1992 and was accepted for publication in January 1993.

CAACs, ARCs, and ARDs were targeted for the survey. This included 87 level II facilities (CAACs) and 23 level III facilities (4 ARCs and 19 ARDs). Twenty-four of the CAACs were ship-based; all ARCs and ARDs were shore-based. Two months after the surveys were mailed out, we telephoned the Command Fitness Coordinators at all CAACs, ARCs, and ARDs within the continental United States from whom surveys had not yet been received to remind them to return their questionnaires. Because of the large number of individual commands sampled, no follow-up contact was attempted with nonresponding level I commands. The final response rate was 70% of level I commands, 79% of level II, and 83% of level III, for an overall return rate of approximately 72%.

Results

Seventy-nine percent of the individual commands conducted level I remedial conditioning programs for PRT failures and overfat/obese members; those lacking programs indicated either that there were no remedial candidates at their command at the time of the survey or that they referred such individuals to a program conducted by another command. Only 32% ($N = 22$) of the responding CAACs conducted weight-management programs; many said that lack of funding or personnel prevented them from offering such programs. All 4 Navy ARCs but only 1 of the 15 responding ARD's conducted a residential obesity treatment program.

Analyses of these programs were mainly descriptive in nature, to provide information on the number, size, character, administration, time distribution, and problems of the level I, II, and III obesity-treatment programs. Results are presented separately for levels I, II, and III and are further divided within each level by topical category.

Level I: Command-Directed Programs

Enrollment Policies and Procedures

Most command-level programs are not tailored to the specific needs of overfat/obese personnel; instead, a single, generic remedial conditioning program serves "overeaters" and PRT failures alike. Almost all commands make enrollment mandatory for members who fail to meet percent body fat standards, regardless of their rank; however, enlisted personnel are somewhat more likely to be required to attend than are officers. Only a few programs offer separate groups for officers and enlisted personnel (8%), or for men and women (3%). The majority of programs are open to anyone desiring to participate, and commands rely primarily on Plan of the Day notices, morning muster, and word of mouth to publicize the program.

Program Characteristics

As expected, program size varied greatly across commands, ranging from $N = 1$ to $N = 325$; mean enrollment was about 26 participants. Groups typically met four times per week for 45–60 minutes per session, regardless of the number of enrollees. Most commands (84%) conducted a 5-, 6-, or 7-month program—equivalent to the time between official PRTs, which are biannual. Although level I programs are intended for PRT failures as well as overeaters, almost 63% of enrollees were overfat or obese. About 6% of level I overeaters were referred to a level II or III program.

Analyses indicated that sea commands had larger average enrollment than did shore-based commands (approximately 37 vs. 25 participants) and conducted fewer sessions per week (3–4 vs. 4–5). While the proportion of program enrollees who were overfat or obese was significantly greater in sea commands (70% sea vs. 61% shore-based, $p < 0.01$), the percentage of overweight participants who were referred to level II or level III weight-management programs was about the same for sea and shore commands (5% and 6%, respectively).

Program Elements

The proportion of time allotted to various program elements is presented in Figure 1. At the command level, the predominant remedial conditioning technique was group exercise, with approximately 81% of program time being devoted to physical activity. Remaining time was divided among several secondary elements, the largest of which was nutrition education (7% of program time). Only 10% of the programs were modeled after some other well-known weight-reduction program. Of those that were, most either used the program suggested in the *Navy Nutrition and Weight Control Guide*[8] or followed the Overeaters Anonymous 12-step program.

Written comments on some of the questionnaires suggested that smaller commands were more likely than larger ones to individualize their programs and allow participants to exercise on their own schedule rather than in an organized group. However, an analysis of variance failed to show a significant difference in time spent on group exercise across small, medium, large, and very large commands.

Program Management

Only 48% of the command-level programs were conducted during work hours; all others required members to attend on their own time. Attendance was taken at 88% of the programs, and absences were usually dealt with by counseling the member or reporting up the chain of command. Make-up sessions were an option in only 7% of the programs. The majority of programs measured percent body fat, height, weight, blood pressure, and PRT scores. Roughly 20% obtained self-reported psychological or behavioral measures, such as self-esteem, eating habits, and exercise habits. Although 37% measured blood

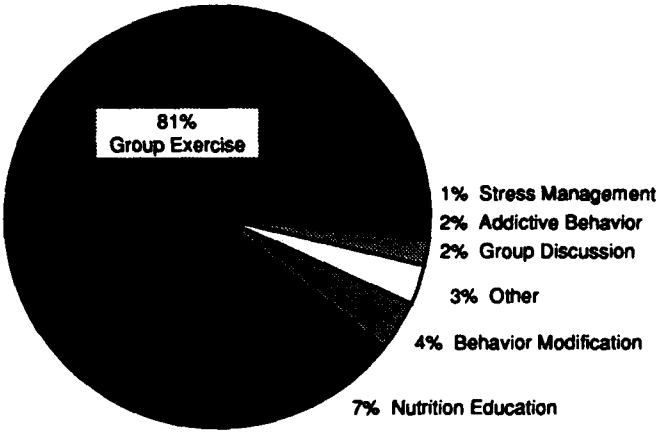

Fig. 1. Level I. Breakdown of time management (N ranged from 396–400 commands across items).

pressure, laboratory blood data were seldom captured in the level I programs. Follow-up was performed at 50% of the commands, usually by either personal contact (41%) or PRT record (55%). As in the program itself, percent body fat, weight, and PRT scores were the most commonly requested measures at follow-up.

Level II: Counseling and Assistance Centers

Enrollment Policies and Procedures

When a member is referred to a CAAC program, a counselor at the CAAC conducts a clinical screening to determine whether level II or level III treatment is appropriate for the individual involved, and, if so, whether the member qualifies for enrollment in terms of type of problem, length of service, recommendation of commanding officer, and program availability. Although the level II programs are nonresidential, enrollees are generally issued temporary additional duty (TAD) orders and attend the program sessions in lieu of their regular duties. In the present survey, 71% of the CAACs reported that members attended in a TAD status. All of the programs were conducted as closed groups—that is, participants entered the program as a class, met together regularly for the duration of the program, and completed treatment at the same time. None of the CAACs reported separating men and women in their counseling groups.

Program Characteristics

The level II programs varied widely in their operational procedures. Some conducted as many as 15 sessions per week, others as few as 2. Some sessions lasted less than 2 hours, others ran all day. Program length ranged from 2 weeks to 8 weeks; availability ranged from twice a year to 10 times a year. Although all of the programs were conducted as coherent classes ("closed" vs. "open" groups), 68% offered individual counseling sessions as well. By regulation, program enrollees were either overfat or obese (see Table I); survey results indicated that approximately 45% were in the obese category. About 32% of the CAACs allowed individuals to repeat or extend their time in the program. Two-thirds of the programs maintained waiting lists for prospective weight-management enrollees.

Program Elements

Figure 2 depicts the mean percent of time spent on various therapy elements in the CAAC weight-control programs. It is readily apparent from the figure that level II program time was divided more equally among several different course elements, including behavior modification techniques, nutrition education, and stress management, than was the case for the level I remedial programs. The largest proportion of time (about 27%) was devoted to group discussion, with group exercise allotted about 19%. Nearly 70% of the CAAC weight-control programs were modeled after some other well-known program, usually Overeaters Anonymous.

Program Management

As in the command-directed programs, height, weight, and percent body fat were measured in over 80% of the CAACs, although only about one-third of the programs recorded PRT scores. Behavioral and psychological measures were obtained

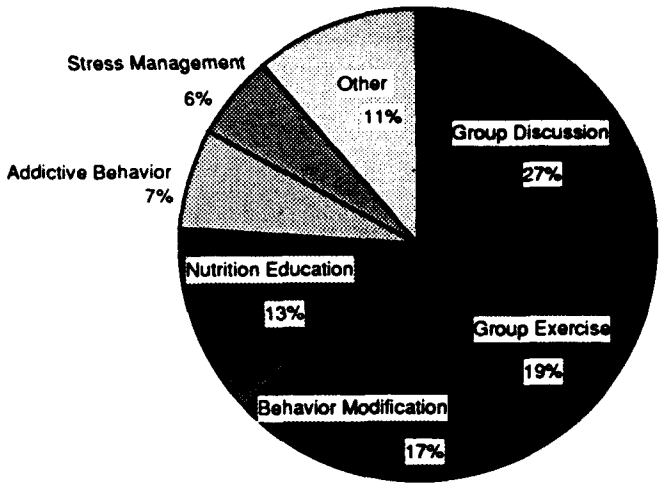

Fig. 2. Level II. Breakdown of time management (*N* ranged from 13–16 CAACs across items).

in about half of the programs. Approximately 23% measured blood pressure; even fewer measured blood glucose (14%) or blood lipids (14%).

Nearly all of the CAACs (91%) performed follow-up evaluations of their participants, usually at either 3 months or 6 months; only 5% conducted follow-up at 1 year. Although questionnaires were the most prevalent vehicle for follow-up (used by 60% of the CAACs), clinic appointments and group meetings were also used by a number of programs. Percent body fat was measured at follow-up by about 55% of the programs. PRT scores were recorded by 32%, and behavioral measures were obtained by 18%.

Level III: Alcohol Rehabilitation Centers/Departments

Enrollment Policies and Procedures

Members meeting all of the following criteria were eligible for enrollment in a level III residential obesity treatment program: (a) medically diagnosed obese; (b) no previous level III treatment for obesity; (c) E-5 or above; (d) at least 1 year of active duty service remaining; (e) at least 6 months' participation in a command-directed remedial physical conditioning program; and (f) recommended by the commanding officer. Enrollees attended residential programs on TAD orders. Level III groups were all open-ended—that is, new members would continually join an ongoing group as senior members completed treatment and left. Therapy groups were therefore heterogenous in representing patients at all stages of treatment. Two of the ARCs conducted separate groups for men and women at least part of the time.

Program Characteristics

By regulation, 100% of the level III enrollees were obese. Standard length of stay at all facilities was 6 weeks, although patients who required additional time in treatment typically were extended as medically indicated. The programs conducted an average of 6.2 formal group sessions per week, usually lasting for less than 1.5 hours per session. In addition, patients spent considerable time attending lectures, watching films, writing journal exercises, and doing required reading in

preparation for the group sessions. All of the ARCs maintained an enrollment waiting list; the ARD did so on a variable, as-needed basis. Unlike level II, the majority of level III programs included family members in some aspect of their treatment curriculum.

Program Elements

In this section of the questionnaire, three of the five level III programs provided percentages that summed to either much less than or much greater than 100%. Although the responses might simply have been invalid, an alternative explanation is that they were the result of the respondents trying to describe an interactive, individualized program in structural terms more suited to levels I and II. All level III programs were modeled after the Alcoholics Anonymous 12-step program (some facilities included their compulsive overeaters with alcohol-dependent patients in the same therapy groups). Such programs, particularly in an inpatient setting, involve many hours of personal self-exploration, values clarification, and spiritual searching—elements that do not readily fit the predetermined categories presented in the survey. Moreover, "treatment time" is considered to occur 24 hours a day, encompassing all events within the residential milieu, including informal conversations in the hallway or private contemplation in the dorm. Thus, one program director might account for only 50% of program time in terms of the elements listed in the survey because the remaining 50% is spent in informal personal work (journal writing, assigned reading, private conversations) and daily routines (meals, laundry). Yet another director might report that the single element "group discussion" occurs 100% of the time—in addition to time spent in the other program elements—because group discussion permeates virtually all program activities.

Because average percent of time could not be computed from these responses, we employed a simple rank-order procedure to estimate the relative importance of the designated program elements (and only those elements) to each other. Within each program, the elements were ranked according to the amount of time assigned to them in the survey (1 = greatest percentage of time; 7 = smallest percentage of time); average rank-order scores were then computed across programs. Table II presents the overall ranking of the seven program elements.

Program Management

Only one facility did not obtain PRT scores at any time during the 6-week program. Otherwise, all of the measures listed—height, weight, percent body fat, blood pressure, blood sugar, blood lipids, psychological measures, behavioral measures, and PRT scores—were obtained at least once by every facility.

All of the level III programs conducted follow-up evaluations by means of a mail-out questionnaire. Thirty-three percent performed follow-up at 3 months, 66% did so at 6 months, 50% at 1 year, and 50% at 2 years (most facilities contacted former patients more than once). However, the only measurement listed above that was obtained at follow-up was PRT score (20%). Follow-up questionnaires typically addressed other issues, such as attendance at local Overeaters Anonymous meetings, command support, family support, and retention in the Navy.

TABLE 2

LEVEL III: BREAKDOWN OF TIME MANAGEMENT: RANK ORDER[a]

Rank	Mean Rank-Order Score	Program Element
1	1.9	Group discussion
2	2.1	Group exercise
3	4.2	Behavior modification
4	4.5	Addictive behaviors
5	4.6	Nutrition education
6	5.2	Stress management
7	5.5	Other

[a] n = 5 facilities.

Discussion

Results from the survey indicated that the majority of the Navy's remedial weight-management efforts occur at levels I and III. Some of the CAACs (level II) performed screening functions only; others offered what were essentially level I (not level II) programs; still others were interested in creating a program but did not have guidance for doing so (e.g., an instructor's manual). But the most frequent comment concerned lack of staffing or funding. Some CAACs had tried initiating a program for overeaters but found that their backlog of drug and alcohol clients became too great. Lacking sufficient resources for both programs, weight management was dropped in favor of the higher-priority drug and alcohol program. Thus, obese personnel seeking assistance usually had only two options: the remedial exercise programs of level I or the 6-week inpatient therapy of level III. Further research might explore the potential for level II programs to provide a cost-effective middle ground for treating obesity in the Navy.

Given the "out of hide" circumstances facing those CAAC directors and counselors who did manage to develop and conduct weight-management programs, it is not surprising that the greatest diversity in program structure occurred in level II programs. Command-directed level I programs were defined almost entirely by group exercise sessions conducted several times a week; they differed from one another primarily in group size. The ARC/ARD level III programs were few in number and were essentially standardized by both the 6-week residential treatment situation and the spiritually based 12-step treatment model. The level II programs, not being similarly circumscribed, were therefore more variable than programs at the other two levels.

With regard to the reliance on physical exercise that characterizes many weight-management programs, one ARC noted that such a therapeutic approach with compulsive overeaters tended to further a "binge-and-purge" pathology. That facility deemphasized exercise as a treatment method, focusing instead on the psychological and emotional causes and consequences of uncontrolled eating. Whether their approach would fare better than one in which exercise is a principal component of the therapeutic regimen might be explored in another study.

This survey was intended to provide information regarding the number and types of remedial weight-management programs offered Navy-wide during 1991. The information obtained was used to form the basis of a prospective evaluation of program effectiveness at all three levels. Results from that prospective study, which is currently underway, are expected to be available near the end of 1992.

Acknowledgments

Report No. 92-4, supported by the Bureau of Naval Personnel (Pers-60) and the Naval Medical Research and Development Command, Department of the Navy, under Work Order No. N0002291WRWW549 and Research Work Unit 63706N M0095.005-6106. The authors would like to thank Mr. Greg Shorts for his assistance in processing the data.

References

1. Bouchard C, Shephard RJ, Stephens T, et al (eds): Exercise, Fitness, and Health. Champaign, IL, Human Kinetic Books, 1988.
2. US Committee on Diet and Health: Diet and Health. Washington, National Research Council, 1989.
3. Bray GA (ed): Obesity: basic aspects and clinical applications. Med Clin North Am 1989; 73: 1–264.
4. Gortmaker SL, Dietz WH Jr, Cheung LWY: Inactivity, diet, and the fattening of America. J Am Diet Assoc 1990; 90: 1247–55.
5. Pavlou KN, Steffee WP, Lerman RH, et al: Effects of dieting and exercise on lean body mass, oxygen uptake, and strength. Med Sci Sports Exerc 1985; 17: 466–71.
6. Conway TL, Trent LK, Conway SW: Physical Readiness and Lifestyle Habits among U.S. Navy Personnel during 1986, 1987, and 1988. Report No. 89-24. San Diego, Naval Health Research Center, 1989.
7. US Navy: Physical Readiness Program. OPNAV Instruction 6110.1D. Washington, Office of the Chief of Naval Operations, January 18, 1990.
8. Weber D: Navy Nutrition and Weight Control Guide. NAVPERS 15602. Washington, Naval Military Personnel Command, 1989.